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Autumn has arrived in the country and with it have come the winter schedules for the airlines. In a change from what we have experienced in the last few years, these schedules now feature less flights for most airlines. Indeed for the MUAC as a whole, there was a 2.5% decrease in the month of October. This reduction comes in the form of reduced frequencies to some destinations, and the (temporary) suspension of flights to some others. At the same time the global financial crisis is taking its toll, finishing off those airlines that were already on the brink as a result of high fuel prices at the beginning of the year. In the recent past Futura, XL and Sterling have had to suspend all flights. I'm sure we haven't seen the end of this, and before the next summer comes along, we might see some very familiar call signs disappear. Other airlines continue to exist but are forced to form partnerships with bigger and financially healthier partners, like Brussels Airlines did when it sold about half of the company to Lufthansa. After several years of deregulation and privatisation, it seems the new buzzword in the industry is consolidation. It remains to be seen if this will bring benefits to the flying public, as less choice generally leads to higher prices.

October also saw the introduction of the new roster for the ops room. It's obviously too early to tell if this roster will be a success in the long run, but there are early lessons that have been picked up. Clearly the nightshift with 4 people is considered a very tough shift, especially in combination with the morning duty. The roster revision team has identified this and they are working on a solution. We must however not expect miracles and controllers do not grow on trees. Even conversions take a fair amount of time before they are ready to be deployed on the sectors. With currently 81 people in various stages of training, it should be clear for everybody that there is light shining at the end of the tunnel, even if it might not be so obvious at first. The current economic downturn, and the resulting lower traffic figures, might just give us the necessary breathing room to cover what remains of the tunnel. Together with TUEM we will make sure that the commitments from the past are honoured, as we do not want to

make the same mistake again of hiring less controllers because traffic figures are taking a dip. In the long run the growth of the aviation industry is still predicted to continue, and we must be prepared for the day when the next climb presents itself. The commitments in the roster masterplan in combination with the introduction of the NFDPS, still planned for early December, will provide us with a very firm basis to solidify the MUAC as one of, if not the leading ATC centre in Europe. In view of the ongoing FABEC, SES and SESAR projects, we will need to be at the forefront to guarantee the long-term survival of the centre. It is refreshing to notice that the MOSAIC principles are slowly finding their ways into these projects and we can only hope that common sense and human logic will prevail over financial aspects. Finally I want to come back once more on the survey about the future of EGATS. Although only about 15% of the membership replied to the survey, those that did reply voted clearly in favour of a continuation of the work as a separate entity. I'm personally very happy about this result, and I also hope the survey in itself will have triggered some of you to take on a more active role. For the last 5 years the board has had one permanent vacancy and as a result most of us have spent a little more time on EGATS matters than first expected. Despite this I personally still take great satisfaction from the work I do and it would be very nice if at the next AGM there are a few other motivated candidates that are willing to invest some of their precious time for the greater benefit of us all. More info on the 2009 AGM will be communicated in due time, but feel free to approach any of the board members if you have any questions in the meantime.

In this edition of the Output you can read about a visit to Kleine Brogel, the Boeing 787 Dreamliner, impressions from the Red Bull Air Race in Rotterdam earlier this year, and much more.

To finish I want to wish you all a very Merry Christmas and a Happy New Year from all of us at EGATS

Professionally Yours,

Ive Van Weddingen
EGATS President

Are we too good?

Bert Ruitenberg

As air traffic controllers we provide a service. Some of us may feel we provide that service to airlines, others may think we provide it to pilots. There may even be a group of us who think that airline passengers are the true beneficiaries of the service we provide. Yet no matter to which of the mentioned categories air traffic controllers provide their services, we all take great pride in our job and we all try to provide the best possible service at all times.

Examples of how this personal pride translates to what our clients can notice include the offering of shortcuts (direct routings) in the air or (during taxiing) on the ground, the offering of alternative runways for departure or landing, and even offering the use of a single runway in the opposite direction of the one active at that time.

Our reasons for offering those “goodies” to pilots are usually not selfish: we genuinely

think we’re doing the pilots a favour by giving them the option we offer. It could reduce the distance between their parking place and the runway, so it might save them a couple of minutes of taxi time. It might get them airborne a minute or so earlier, or save them a minute or two of flying time. Wasn’t it IATA (the International Air Transport Association) who sent out an appeal a few years ago to air traffic controllers to try and shave off 1 minute of flight time for every flight they handled, in order to achieve a significant cost reduction for their member airlines? Therefore the kind of “micro improvement” we’re sometimes able to offer to individual flights must be important to our customers!

But are we really doing pilots a favour when we offer them such micro improvement alternatives, especially when this is done at short notice? And that the notice time is (really) short almost goes without saying: we see an opportunity for micro improvement develop, we immediately put it to a pilot as an

option.

This “real time” modification of existing (and understood) plans¹ of pilots used to be fine in the days when aircraft were analogue machines that were operated by manual control inputs of the pilots. But those days are gone: aircraft nowadays are complex digital machines, operated by computer systems that are managed by the pilots.

To put it simply, in the old days a “real time” change-of-plan usually didn’t require many changes to the aircraft configuration – it just was necessary for the pilots to understand the change and carry it out. Today however almost any “real time” change requires an update of the FMS – in addition to having to understand the change the pilots must also re-program the aircraft in order to be able to accommodate it. This potentially adds to the workload of the pilots at a time when they least need it, i.e. just before take off or landing.

In order to illustrate the scope of this issue I’d

continues on page 6 >>



summer 2008

Ding Duck
Aviation Humor

2

Word of the President
Professionally Yours

3

Are we too good?
Hindsight #8

4

IFATCA ERM Report
Lisabon

7

**Waiting for the
DREAMFLIGHT**

10

CBAS

14

Red Bull Air Race
Rotterdam 2008

16

Ilia's Charity

18

EBBL Visit
A look behind the curtain

22



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articles if not specified.

like to introduce Archie. Archie is the nickname given to the LOSA Archive by its creators, Dr. James Klinect and his team at the LOSA Collaborative (from the University of Texas, Austin, Texas). And LOSA is the acronym for Line Operations Safety Audit, an airline safety programme to monitor safety in normal operations that is endorsed by ICAO.

At the time of writing Archie comprises records of 6439 observations during commercial flight operations of more than 25 participating airlines (large and small, from all regions of the world). It is important to realise that by definition these records represent 6439 “normal” flights, i.e. flights during which no reportable safety incident occurred – successful operations from point A to point B, if you like.

In Archie’s data a late runway change is identified as an “ATC threat to the flight crew” in 843 of the 6439 observations. That is in 13% of the flights – which means that on average one in every eight flights faces a late runway change. One in every eight! And Archie has more to tell us: of the late runway changes, 39% occur after pushback and 61% occur late in the descent or approach (i.e. below FL200, including multiple runway changes after Top of Descent).

Yet these figures don’t say much by themselves, other than maybe underscoring the statement about air traffic controllers trying to provide the best possible service at all times, earlier in this article. But Archie goes on: of the 843

late runway changes 17% were mismanaged by the flight crews, which means the flight crew committed one or more errors that are linked to the ATC threat of a late runway change. This makes “late runway change” the most often mismanaged threat in the LOSA Archive – other mismanaged threats average around 10-12%. Here’s an example of an observation narrative from Archie:

After takeoff briefing had finished, rwy changed to 16R from 34L. So Pilot 2 changed FMS setting and Pilot 1 checked the reverse side SID chart (16R) and set proper course and altitude on Mode Control Panel, but didn't change the HDG selector from 336 to 156.

Remember that the percentages mentioned above relate to “normal flight operations” without reportable safety incidents. The flight crews that had the 17% mismanaged late runway changes must therefore have been able to successfully manage their errors, otherwise their flights wouldn’t be included in Archie. But that implies that they must have experienced a higher than usual workload between the moment the late runway change was given to them, and the moment at which the operation was returned to normal again. A higher than usual workload in what is universally regarded a critical phase of flight. Is that what we want to achieve when we try to provide the best possible service to pilots?

Of course there are late runway changes that are unavoidable. If there is a constant stream of traffic and the weather is changing (or

whatever other reason prompts the runway change) there will be some flights that need to be re-cleared after they’ve commenced pushback or after their Top of Descent. This is all part of the game, and pilots as well as controllers have to manage those situations to the best of their abilities. But for the other type of late runway changes, the “unforced” ones that we offer to pilots because we think we’re doing them a favour, Archie’s statistics tell us that we may need to reconsider our way of thinking: we may actually do pilots a bigger favour by NOT offering them an alternative runway for departure or landing than by offering it at the stage where we tend to do so.

So, next time you are in a position to offer a micro improvement to a flight, ask yourself if the perceived gain will outweigh the imposed increase in workload for the pilots (with the associated chance of flight crew errors) and make a judgment call. Sometimes in service provision “less is more”, especially when viewed from a safety perspective.

1 “mental model”

2 A “threat” in this respect is something that originates from outside the flight deck and that has to be managed by the flight crew in order to maintain the margins of safety for the flight.

Ding Duck



IFATCA ERM Report

Lisbon 24-26 October 2008

By Raf Vigorita

Welcome to Lisbon, the capital of beautiful Portugal, where this year the IFATCA ERM was held from Friday 24 to Sunday 26 October. I have been trying hard to think what Portugal is famous for. Before Google, I would have said for Vasco da Gama, one of the most famous navigators of all times, for the Port wine and for some ceramic. After Google, I stick to those three. Anyway, it's a very beautiful country, and if you don't have it on your wish list for holidays, my advice is to add it to that list without hesitation.

It's been since mid 1992 that I didn't have the pleasure of enjoying the Portuguese hospitality and I have to be honest, my expectations weren't disappointed. Upon arrival, we were collected at the airport by Maria, a controller turned into chauffeur for the occasion. Maria was just as friendly as her husband, "o presidente" of the Portuguese ATCO Association. But again, everyone I have met has been whole heartedly friendly, being the waiter of the local bar or the receptionist of the hotel, the TAP staff at the airport check-in or our Portuguese colleagues that took turn in making this ERM a great success.

Also to be noted is that the Portuguese Association had only 6 months to organize this venue after that Austria, initially selected, had to withdraw and abandon the project due to lack of funds. Everyone was expecting a scaled down event, but the Portuguese surprised everyone by organizing one of the best, flawless and efficient ERM's of recent memory.

The ERM was held in the newer part of Lisbon, just few minutes walk from the EXPO, the Aquarium and the Casino, definitely a lovely place: neat, modern, and one of the few stretches of coastline not occupied by a factory or ships containers, with a vast selection of nice bars and restaurants, and a beautiful breeze to go with a fine sea view. A place where, if you are not careful, you might forget all your worries, if only for a while!

After the Friday Safety Seminar (about CISM, SMS, Crisis management and Just culture) which I couldn't attend due to flight schedule, the official ERM opened on Saturday with a very interesting presentation by IFATCA CEO and president Marc Baumgartner, highlighting the main points of the future of ATM (2030):

- ATM systems performance based
- High level of automation
- Proactive and strategic

- Trajectory management
 - Dynamic airspace
 - UAVs
 - Virtual TWRs
- and obviously, less ATCOs.

After that, the first speaker to take the floor was Eurocontrol's Joe Sultana, Head of CFMU, giving us an overview on flight efficiency plan. Given the economic crisis that has hit hard the entire planet, and the high fuel prices that preceded it, the airlines industry has lost 5 billion USD and the gloomy forecast for 2009 tells us traffic growth might be less than 1%. The global economy was the main driver for the cancellation of less profitable flights, driving Eurocontrol, IATA and Canso to produce a document on fuel and emission saving. An eye at the environment, the other at the wallet.

For this matter, a dynamic management of airspace together with more emphasis on fuel emissions (and fuel saving) is the challenge for an ATM culture that needs to adjust to yet a new situation. Also the CO2 trading scheme will have a significant impact for airlines, whereas will be fined when emission will be more than a set standard.

The action plan is to enhance the European en-route airspace design, improve airspace utilization and route availability, optimizing



airport operations and awareness.

The route changes applied in 2008 produced a saving of 100.000MN/day, 80Kton of CO₂/year, 20Kton of fuel/year and 20 million Euros.

For the way ahead, to make use of flexible airspace, the cooperation of airline operators will be necessary to know their priorities and requirements. When there is a direct available, it should be flight plannable as for each 100Kg of fuel, another 20Kg are needed to carry it (plus an extra 65 tons of CO₂). Therefore, where directs happen every day, a pre-plannable direct will save fuel to be taken onboard just to carry other fuel. And apparently, this will also alleviate the bunching and holding problems (due to earlier arrival times due to shorter routes than planned).

After this, Dr. Walter Gaber, vice president of HR at FRA airport illustrated the importance of crisis management. He brought to us the concrete example of how much distress and how many problems they had to face when receiving flights from the disaster areas of the 2006 Tsunami. A part from very crude pictures, the amount of effort necessary to process all people returning home without anything else than their beach wear was some kind of eye opening. We obviously will never have this kind of problem, but I know there is a safety plan foreseen for exceptional circumstances. Maybe more people should know about it and also undergo some kind of training. One thing I'd like to underline from his presentation is that, especially in case of crisis, you must follow the procedures as much as possible, because around you everyone else will and that's what they expect from you and base their decisions upon.

As usual, Alexander Skonieczki from Eurocontrol was a welcomed speaker, this time about safety and just culture, a dear subject to the entire ATCO community. I want to report his definition of safety culture: "The S.C. of an organization is the product of individual and group values, attitudes, competencies and pattern of behavior". The S.C. is defined on how deep is the

commitment to safety and how safety is prioritized by all individuals and by the company as an entity. The Eurocontrol approach is to understand S.C. in ATM, measure it and learn, and help ANSPs measure it and improve. The key elements of S.C.: commitment, involvement, responsibility, communication, trust, teaming, learning and reporting.

To follow, Eric Miart, the Eurocontrol Airport operations programme manager illustrated the challenges related to airport operations, ranging from safety to delays, queuing to environment, infrastructure and capacity. It is important to underline that, although we might be out of the loop as far as airport operations are concerned, there is a great deal of research and new technology, new ideas and solutions being implemented to improve airports and their operations.

Very interesting, three of our guys took the stage to present us with important information: Patrik Peters, as EVP EUR, illustrated to everyone the importance and benefits of having a CISM program in place, Volker Dick, as president of ATCEUC, and Frederic Deleau, as MOSAIC representative, explained the challenges for the future, our future. I do believe you know all about the challenges we face, thus I won't repeat the same things over again. Also, still one of us, Philippe Domogala explained that IFATCA has a European Support Fund to help the less fortunate MAs in case they might need some economic help in order to attend the conferences. I find this a very interesting idea, as the less fortunate are normally the ones facing the most difficult challenges too, so their presence is paramount.

The last report, before a day of discussion about each European country and their problems and achievements, was presented by Fiona McFadden, the IFALPA and ECA representative. Most important to know is that the pilot associations consider EASA as unreasonable, as they are changing rules, regulations and publications from a very accessible airman point of view to a very complicated and totally out of reality legal frame. This is particularly ill advised

as the CONOPS of SESAR shift a lot of new responsibilities on pilots, and all of a sudden they find themselves with less help to cope with it. Also in some countries, thanks to the EASA contribution, pilots face immediate revocation of their license in case of incident, pending investigation, which goes totally against the just culture that everyone in aviation is working so hard to implement. Last, our condolences go out to all those families touched by the JKK accident in Madrid and also to our colleagues of IFALPA who suffered the loss of 6 of their own, the two pilots in charge of the flight and 4 others that were relocating, including their safety expert. Again, just like in the Linate accident, serious flaws in the investigation called for the charge of 3 mechanics for manslaughter.

On this note, I'd like to conclude that, although we work, plan, achieve and deploy a great deal of new projects, technology and ideas, we still have many challenges to overcome. Aviation is a great world, but also a world where, when things go wrong, there must be a culprit at all costs. And this, must change. Fast. For the sake of safety.

This is all for now. Now let's focus on the introduction of the N-FDPS and after that, the appointment is for next April for the Annual Conference in Dubrovnik, Croatia. See you then!

Wondering when
we will present the
new logo?



Waiting for the DREAMFLIGHT

Gabriel Bangiu

On the 8th of July 2007, or 7-8-7, in the American date style, thousands of people gathered at the Everett Boeing Assembly Factory, along with other hundreds of millions of watchers via Internet and other Media Channels, were witnessing one of the biggest events in aviation history, a milestone in aircraft engineering and the beginning of a new era in airline industry, the roll-out ceremony of the revolutionary Boeing B787 Dreamliner.

Finally, after many years of studies, designing and engineering, the symbol of revolution in air travel was revealed to the world and this can be considered as the "Point Zero" for what is believed to be a completely new experience for all travelers in the future, a real "dream flight"... It all started back at the end of the 90's, when the growth of the airline industry was at its peak and the two main players on the market (Boeing and Airbus) were both trying to consolidate their positions, motivated also by the forecasts indicating a real boom.

As Boeing already had the upper hand in the big sized airliners market, with the 747, and the A380 from Airbus was around the corner, the battle moved in the mid-sized airliner category fuelled also by some studies showing that the "hub-to-hub" philosophy was losing ground to "point-to-point" strategy.

In that market, Boeing was offering the B767 which, despite all the improvements brought along the years, was already showing its age and was quickly outsold by its main competitor, the Airbus A330. The last attempt made by Boeing, with the stretched B767-400, in 1997, proved to be a serious failure, with only 2 airlines interested in acquiring the "new" aircraft, Delta Airlines and Continental.

Something had to be done and in March 2001 Boeing came up with the Sonic Cruiser concept, supposed to be a fast subsonic airliner, traveling at speeds up to M 0.97 and using the same amount of fuel as the A330.

That was considered achievable by using new materials (lightweight carbon fiber) for the frame, new and more efficient engines and all-electric systems to provide power.

Although few operators had shown some interest in it, no orders were ever received for the Sonic Cruiser, the main concern being the potential high operating costs.

Then, in 2001, the aviation world has changed completely, following the atrocious terrorist attacks on the September 11 and this resulted in a global crisis affecting the airline industry and with the continuously slow demand in aircraft and the rising oil prices, Boeing had to abandon the Sonic Cruiser in December 2002, concentrating instead on producing a more conventional airliner with an increased efficiency.

The project, named 7E7 initially, made use of some features of the Sonic Cruiser, like carbon fiber materials for most of the fuselage parts and wings and "bleedless" engines which had made the aircraft 20% more fuel-efficient and also more environmentally friendly.

Shape-wise, the 7E7 featured raked cockpit windows, a long nose and a distinctive tail similarly shaped to a shark dorsal fin.

Boeing also organized a competition for the name of the new aircraft and the name Dreamliner had been chosen for that.

Following the interest of many airlines in the Dreamliner and also taking into consideration many other factors (including production costs and airlines requirements for a more conventional design), Boeing had to change the initial design, adopting instead a more conventional shape regarding especially the windows and the tailfin.

In April 2004, All Nippon Airways became the launch customer of the Dreamliner, with an order of 50 aircraft and in January 2005 the Dreamliner was given the go-ahead for production, being also renamed Boeing B787. For that, Boeing had foreseen three versions of the Dreamliner...

The 787-8, the basic version, will have a length of 56.7 m, a wing span of 60.1 m and will seat between 210 and 250 passengers, carrying them on distances between 7600 and 8200 nm, at an estimated cruising speed of M 0.85. The second version, the short-range 787-3, was designed to replace the 757-300s and the 767s used on high-density regional routes. As it did before with the special version of the Boeing 747 for Japanese domestic market, Boeing applied the same philosophy to 787

family, using the same fuselage of the 787-8 and strengthening it in some places, to achieve higher cycles.

The 787-3 is also featuring blended winglets instead of raked wingtips, which give more efficiency on short-haul flights, where climb performance is more important than the better cruise performance offered by the raked wingtips. The 787-3 will seat up to 330 passengers on distances between 2500 and 3000 nm. It will keep the same length as the 787-8, but the wing span will be shorter (51.7 m), making it able to operate from airports with restricted gate spacing. Not surprisingly, the launch customer for this variant will be All Nippon Airways.

The third member of the 787 family is the stretched 787-9, seating between 250 and 290 passengers on long range flights up to 8500 nm. The fuselage was stretched to 62.8 m and the wingspan increased to 63.0 m.

So far, these are the three versions of the Dreamliner, although some airlines are pushing Boeing into designing a longer than the 787-9 version, dubbed the 787-10, able to accommodate up to 310 passengers, with Emirates showing real interest in it. But, with the delays causing a serious setback to the 787-8 program and with just a few airlines interested in the possible 787-10, Boeing is quite reluctant in developing such a variant. It should be noted that another reason for not going ahead with the 787-10 could be its competition with the 777-200LR, which is still a success all over the world and Boeing has no intentions in stopping the production of such a new airframe any time soon.

The Dreamliner is a revolutionary project from many view-points, from raw materials used for the frame, continuing with the logistic chain, then the new engines used and going up to the final assembly line.

Following the big success of the manufacturing process of the Airbus A380, Boeing decided to apply the same strategy for the making of the Dreamliner. Therefore, a big suppliers network has been established, with companies all over the world, from Japan all the way to Europe, contributing to the manufacturing process of the 787.

Among numerous partners, we can find Alenia

As soon as
YOU
design the new one.

Send your design for the new EGATS logo to; logo@egats.org

You should be a member of EGATS to participate - Entries should be received by 28/02/09
The Board will select 3 finalists who should present their proposal at the AGM - The membership will select the final winner at the AGM



Aeronautica, which is making the horizontal stabilizers, center and aft fuselage. Other suppliers include Fuji Heavy Industries, for the center wing box, Kawasaki Heavy Industries, for the main landing gear wheel well and part of the forward fuselage, Mitsubishi Heavy Industries, for the wing box and Korean Airlines Aerospace Division for the raked wing tips of the 787-8 variant. The landing gear is made by the French specialist Messier-Dowty.

All parts are hauled then to the final assembly site, in Everett, Washington, where the Dreamliner takes final shape.

Since the shipping time of the parts would have been too long, Boeing came up with another innovative idea. In order to reduce that time, air transport was preferred over the sea transport. But there was no aircraft capable of carrying all the sub-systems supposed to be delivered to Everett.





Therefore, 4 Boeing B747-400s were bought from various airlines and converted into oversized cargo planes. After undergoing modifications, they have a length of 71.68 m, a wing span of 64.44 m and a maximum height of 21.54m. With a Maximum Take-Off Weight of almost 364 tons, they can deliver the parts to Everett in an average time of 8 hours, flying at a speed of M 0.82. The modifications began in 2005, with the first flight taking place in 2006. The flight-test and certification process took place in 2007 and return to service was made in the same year. According to their role in the 787 manufacturing, they were nicknamed "Dreamlifters". At the time of writing this article, only 3 Dreamlifters are operational, with the fourth one due to join the fleet in a couple of months.

sure equivalent of 6000 ft, compared to the standard 8000 ft used nowadays, offering more comfort to the passengers. Another leap forward is represented by the new generation of engines, the alternatives being the Trent 1000, offered by Rolls-Royce, and GEnx, produced by General Electric. With enormous by-pass ratios and using the latest technology, they provide huge thrust, being in the same time environmentally friendly. To comply also with the new noise regulations the engine nacelles were fitted with chevron edges. The certification for the RR Trent 1000 was achieved in 2007, followed by the GEnx-1B engine, in March this year. Another innovation is the standard electrical interface for the engines, which allows a change-over between the two types.

When ANA placed its initial order for the 787, they were hoping to get the first aircraft by May 2008, with the first flight of the prototype being scheduled for September 2007. The first announcement for delay was made in September 2007, the program being delayed 3 months, due mainly to shortage of fasteners. By October 2007 another 3 months delay was announced for the first flight, blaming this time also on the logistic problems. Further on, in April 2008, Boeing stated that there will be a bigger than expected delay, with the first flight being rescheduled for late 2008 and deliveries starting not earlier than third quarter of 2009. Even if, at this moment, 25 Dreamliners are in various stages of construction, it's difficult to say if the deadlines set by Boeing are to be met.



But the B 787 Dreamliner is expected to bring also many other innovations. As much as 50 % of the primary structure is made of composites, including wings and fuselage. For the first time in airliners history, the fuselage is made from one-piece sections, welded together, therefore eliminating the need of rivets. Inside, Boeing is offering a cabin with a higher humidity level for more comfort and larger windows, fitted with auto-dimming electronic shades. Also, using air supplied by electric compressors and not conventional bleed air from the engines, Dreamliner has a cabin pres-

The Dreamliner is also equipped with a self-monitoring diagnostic system, which can foresee the mechanical problems and send real time data to ground technicians, via a wireless broadband link. Also, for better flight control, an active gust alleviation system was introduced, this system being used first time on the B-2 Spirit bombers. Despite all the innovations it brought and the success it enjoyed (until now, 896 orders were received, from 58 customers...), the Dreamliner program suffered many setbacks from the moment it was rolled-out.

Boeing is also relying on a highly over-optimistic flight test program which is supposed to last only 9 months. This might seem a bit unrealistic, considering that the shortest flight-testing program so far, for the B777, lasted 11 months. But the times had changed and airlines are pushing Boeing hard, in order to have the Dreamliner in service as soon as possible so it is likely that passengers will enjoy the comfort and the new features of the Dreamliner in very short time. Only then we will know if the bet proposed by Boeing was made at the right time. The waiting is almost finished...



CBAS, a whole different kettle of fish

Sarah Marsden

CBAS stands for Competence Based Assessment System.

What is it?

A structured, phased assessment system based on ATC competences, which will enable OJTIs to fill out reports and access information about a trainee's progress over a defined reporting interval using kiosk / office / home PCs in a quick and easy way. The system will provide a definite structure for both the OJTI and the trainee. The OJT will be divided into successive levels, and the OJTI will know in detail what is expected of the trainee for each level of training. And equally important, the trainee will have a detailed description of what is expected for each level of training.

History

The system was developed at LVNL by Esther Oprins an educational psychologist in cooperation with Ernst Burggraaff, former Training manager Amsterdam ACC in an attempt to improve training and assessment. Some trainees were failing, not because of a lack of effort from the OJTIs, but because there was a shortfall in their assessment scheme that meant the trainees' weaknesses were not spotted or pinpointed in time for some targeted training to be effective.

Martin Schneider and Patrick Cromheecke visited the LVNL a couple of years ago, searching for improvements of training and better managing training results. LVNL and MUAC decided to cooperate in this area and to implement the LVNL system at MUAC, also in the context of FABEC. Ellen Beckers, of MASUAC Training Section, was appointed as project leader to implement the LVNL system at MUAC and to adapt the system to the MUAC situation. She made contact with LVNL to request them to present their system to a working group from the Ops room and Training Section here at MUAC. The reaction to and feedback from this presentation were very enthusiastic. Especially

when they told us that they had improved their Ab-Initio pass rate. And the seeds of CBAS (name coined by Ellen) were sown here at MUAC.

A brief explanation of CBAS

Here at MUAC CBAS has been in development for approximately 12 months.

Some of you may have been interviewed by members of the CBAS Working Group about which qualities you look for in a trainee that indicate to you that there is an ATCO in there somewhere!

Some of your replies included;

- "Be interested – ask questions"
- "Able to cope with own mistakes by making them a positive lesson for improvement."
- "Must have developed effective communication / coordination skills. (Short and precise)"
- "Achieve 5nm or 1000 feet."
- "Ability to work in a sector based team, sharing tasks and information dynamically."
- "All radar techniques to be fully understood and part of Trainee basic skills. (Vectoring, use of ROC ROD etc)"

We received comments on all aspects of a trainee's performance. Armed with this feedback from the Ops room, existing assessment material and the LVNL model, the working group then set about with the help of Ernst and Esther, developing the structure of the assessment system.

The structure of CBAS is based on assessment items known as Competences, for example; SAFETY, EFFECTIVE TRAFFIC HANDLING, COMMUNICATION. These are further subdivided into Criteria.

For example;

In SAFETY two of the Criteria are, "Switches in time from monitoring to vectoring" and "Builds in safety buffers"

In EFFECTIVE TRAFFIC HANDLING two of the Criteria are, "Achieves inbound spacing as required" and "Applies vector techniques correctly".

These Competences and Criteria are a comprehensive list (14 Competences comprising a total of 54 Criteria) of the qualities and skills that a trainee must acquire and develop in order to become the finished article, a fully qualified controller.

CBAS will not only provide a different method of recording a trainee's progress but also provide a restructuring of the OJT training into defined Levels. In each of the Levels the required standards of performance for each Competence and Criteria are clearly described in behaviour descriptions and linked to the level of traffic complexity (low, moderate, high) and to the amount of guidance by the OJTI.

OJT Phase 5B	Duration
Level 1 Introduction	1-2 cycles
Level 2 Initial sector training	10-15 cycles
Level 3 Intermediate sector training	10-15 cycles
Level 4 Advanced sector training	10-15 cycles
Level 5 Consolidation	2-4 cycles

Here at MUAC we have started by developing CBAS for the Ops room training.

The OJT will be divided into 5 Levels. Level 1 will immediately follow the simulator course (4B). This will be a short (1 – 2 cycles) period of (re)familiarisation with the live traffic, OPS room environment and OJTI team. The trainee will quickly progress to Level 2. We anticipate, from experience that this level will last 10 – 15 cycles depending on the progress of the trainee and other factors such as traffic complexity levels, training hours completed and annual leave taken.

When the data from the CBAS reports indicates that the trainee has reached the standards required to move on to the next level, the OJTI team together with the OJTI officer will decide whether the trainee should progress to the next Level.



Levels 3 and 4 will have the same duration as Level 2, 10 – 15 cycles, and progression through these levels will be as described for level 2.

Level 5 will last 2 – 4 cycles and will be a consolidation phase during which a checkout date will be set.

After each defined reporting period (e.g. a duty or a cycle), the OJTI will score on a scale from 1 to 6 how well each Criterion is achieved for that reporting period. The OJTI will judge these scores against predefined descriptions of how a trainee should be performing in this Criterion for his current level of training. A score of 1 – 3 will be considered “insufficient” and a comment field will automatically appear to be completed by the OJTI in order to clarify the problem.

The data from these reports are filled in on an internet based assessment tool and will thus be available to the dedicated OJTIs for the trainee and to the Training Section. The dedicated OJTIs will use this data to decide when a trainee is ready to progress on to the next level of training. The data will also highlight any weak Criteria the student has, thus enabling the OJTI team to concentrate on these Criteria to enable the trainee to progress to the next level and eventually towards checkout.

Does it work?

LVNL has experienced a better understanding and agreement among the OJTIs, resulting

in better assessment and training. It is now possible to coach on specific competences, since weak points are better visible. Failure rates at LVNL have decreased since the scheme was first introduced in 2002.

How and when will CBAS be introduced to MUAC
You may not realise but the first paving stones for the introduction of CBAS have already been laid. The creation of “Dedicated OJTI teams” for each trainee is part of the CBAS foundation. This will enable OJTI teams to monitor a trainee for at least the whole of one Level of OJT training. And will therefore provide accurate and consistent data for the reports.

The next part of the introduction has also been going on behind the scenes. Some of you already know about CBAS because you have had some contact with or heard from someone in the CBAS working group about it. This article is also, in some way, part of the introduction.



From this point, the CBAS working group is completing the structure; Competences, Criteria and Behavioural descriptions. The technical development is underway with a wish to implement the scheme for access from kiosk, and office PCs and via the internet from home.

The intended date for implementation is during the first half of 2009.

The Future

The plans for implementation of CBAS aren't just limited to the Ops room. It will be introduced at IANS; development is progressing in parallel to our own here at MUAC. CBAS will also be introduced in simulator training here at MUAC for Ab-Initios.

The hope is for a well structured, easy to access, scheme that will be fully accepted and understood by OJTIs and trainees. The system will be the same from the day a trainee starts his training in IANS until he finishes at MUAC. At each stage the OJTI and the trainee will be fully aware and understand what is expected of the trainee. The OJTIs will be able to highlight weaknesses with the use of CBAS and target the training accordingly, making the best use of our training resources and personnel.

In Conclusion

We strongly believe that this improved assessment system will benefit all our training effort and we trust that everybody involved in training will accept and apply it enthusiastically. We are counting on you!

If you have any remarks or questions, just ask around in your own sector team who is involved in the working group or contact the CBAS working group at masuac.cbases@eurocontrol.int

CBAS Working Group

Ding Duck



Red Bull Air Race Rotterdam

Ive Van Weddingen

The Red Bull Air races are possibly some of the most spectacular aviation events on the planet. Conceived in 2001 they combine the most exiting elements of flying and motor sports. The Red Bull team, together with World Acrobatic Champion Peter Besenyei, spent two years developing a race that was not just about speed, but also about skill and precision. The most time was spent in the design of the inflatable air gates, which create the obstacles the pilots have

to fly between. 2003 saw the first race in Zeltweg, Austria with a second race in Hungary in the same year. Due to the high level of skill required, only the best pilots are invited to take part. From the early beginnings with 6 pilots, the field has now grown to 12 pilots, competing in 8 races. In June 2005 the race circus stopped in Rotterdam for the first time. It was a very successful edition with a spectacular racecourse which included a flight under the famous Erasmus bridge. The combination of good weather and free entry led to over 700000 people coming to watch the event. Given this it was only a question of

time before the event would come back to this city and in July 2008 the race came back to Holland. Local hero Frank Versteegh had announced his retirement from the races at the beginning of the season, quoting increasing difficulties to cope with the high G forces. This was certainly a factor in the lower attendance numbers, although the weather didn't cooperate either. The rain and wind actually got so bad that on Saturday the second qualification session had to be cancelled. The racecourse was also slightly modified this year

with all the action now taking place over the Maas downstream from the Erasmus bridge, the bridge serving as the turning point. When all was said and done, British pilot Paul Bonhomme in his Edge 540 took home first place when his opponent in the final, Austrian Hannes Arch missed a gate and had to abandon the race. I hope you enjoy some of the images from that day at the races. If you ever have the chance to go and see this event, don't think twice about it, you will not regret it.



Ilija's Charity

Ilija Bojilov

'Ilija's Charity' was created in response to Kate Blewett's documentary film for BBC 'Bulgaria's Abandoned Children,' which shows how children live and die in one of the many institutions for orphans in Bulgaria. Our charity started as an initiative to collect relief for helping abandoned children in such orphanage homes.

We had a very good early start with a lot of positive response and in only three months managed to collect 9000 euro. With these funds, we were able to buy 12 wardrobes, a gym bike, diapers, backpacks, underwear, flip-flops, study materials and transport tickets for school kids. We also helped financing the completion of an old house renovation, which is to be used by the grown-up children leaving the home as a transitional place between the institution and an independent life in society. We are also working as an intermediary in trying to raise funds from other organizations for our other causes, such as, the purchasing of 80 beds and a minibus, or collection of used clothes.

On 30th of October 2008, in Maastricht, we registered our charity as an official foundation, with a chairman Ilija Bojilov, secretary Clare Taylor and treasurer Erik Stulemeijer. The new name of the foundation is still to be determined but will be announced later this month.



Erik Stulemeijer and Clare Taylor at the notary office.

Our main objective is to collect and distribute relief for children in need, and to try to integrate as many as possible back into the society that deserted them. We wish to dedicate our work to improving the lives

of these children, to financially supporting programs that aim to train them personally and adapt them to life, as we know it.

Below you can read about our first charity mission, and about my eventful three-day stay in Bulgaria...

October 1st, 2008
Maastricht

Dear friends,

Before I left Maastricht on 22 Sep 2008, for my first mission, I got in touch with a few ladies who were all involved with homes for abandoned children. They were all recommended to me by a friend of mine, Elena Kamilarova, who works at the European commission in Brussels, and who has also done some charity work in the past and had good experiences with these women; Slavka Kukova is a human rights lawyer and charity activist in Bulgaria, Diana Dimova - managing director of Bulgarian Samaritans, a non-governmental organization (NGO), and Bistra Boteva - director of a home for sick and abandoned children in Gorski Senovec, a small village in the North of Bulgaria. Mrs. Boteva has recently become famous for her achievements in her institution.

I had previously made an itinerary to meet all of them and to see what they had done in the past for the children and what their plans were for the future, so that maybe we all (me and you guys) could decide where to go from here. Upon my arrival in Sofia, on September 22nd, I called all of them to confirm our appointments. I spoke on the phone with Slavka Kukova, who wasn't in Sofia at that time but was kind enough to discuss on the phone with me the current situation in Bulgaria and to offer her help in future.

On September 23rd, I woke up tired and unrested by the noise of the rain outside. It was still dark. I looked at my watch. It was 6:50 am, almost time to get up and hit the road. First, I had to make my way through the traffic of Sofia towards the northern suburbs

and the market there called 'Iliantzi,' where I was first at the stands to buy 50 pairs of flip-flops and 40 back packs [a total of 430 BGL = 230 Euro]. That was done quickly since I had been in contact with a friend of mine who works there and had arranged it all in advance. Around 10a.m., I made my way through the traffic again and drove to Blagoevgrad, a town located 100km south of Sofia. There, I met the director of the local home for abandoned children and the kids living in it. I was given a very warm welcome and a tour of the place, and met most of the children who were not at school. I saw their rooms and made sure they really needed the 12 wardrobes the director had previously requested. I also made pictures of the old ones. My first impression was that these children were quite happy and well taken care of.



Children from the Home for abandoned children in Blagoevgrad.

When I was done taking pictures and talking to them, I left for the local store called 'Metro' (an equivalent of 'Macro' here), where I bought 12 wardrobes and 2 packets of diapers for a kid called Djemal (Djemi), a 7 year-old,



Djemi.

whose parents never taught him how to speak or not to pee in his pants. Since he was new to the home and still learning, they needed the diapers temporarily (12 wardrobes and 2 packets of diapers for a total of 2097 BGL = 1080 Euro).

I went back to the home to finish the paperwork and to get the certificates for the donation, said goodbye to the children and their teachers, and headed back to more traffic. I left the place with mixed feelings: on the one hand, I felt I had done something good, something some of you had entrusted in me to do, and on the other, I had a feeling that I still hadn't found the exact thing I had come for...

* * *

On the 24th, I left early in the morning for a town called Stara Zagora, located in central Bulgaria, to meet Diana Dimova and her colleagues working together in their own organization called 'Bulgarian Samaritans.' They had been working for homeless children and developing their activities for the last 10 years (you can read more about them at www.samaritans.bg) and they currently manage several different programs. I was very impressed with what they had achieved in short period of time!

After I arrived, they gave me a quick introduction in their office, and a brief on what they had accomplished and what they were working on presently. Then, Diana and I left for a village called Petrovo to visit a home for ill and abandoned children, whose director was a young, newly appointed on this position woman, in whom Diana had great hope, and believed that she would be different from the old director. When we arrived, I noticed some tension among the staff workers. I suppose they were nervous because they had a visitor they didn't know. There were renovations going on at that time and it was a mess everywhere, so I was shown around, but to be honest, I felt like a tourist in Tibet who was only allowed to see what the local government wanted him to see.



I made plenty of pictures and there were many things I didn't like: poor hygiene, bad proportion between the number of children to the number of caretakers, broken furniture and lazy building workers smoking everywhere.

In general, the place felt cold and very unwelcoming. They had many ill kids, some of them bed-bound for the rest of their lives. In a place like this, two or even more mortalities per year are something common. The staff told me, that there was no cure for the diseases some of these kids were suffering from. The children were divided between the rooms depending on their condition. There was a room with bed-bound kids, another one, with children with mobility difficulties, and a third room with soft furniture and dry pool and music where the more fortunate ones could play.



Many of these kids were very sweet and charming and were desperately looking for contact, for touch and conversation. I saw a broken gym bike in one of the rooms and asked the director if another bike was something that might be useful for those children with mobility difficulties, and she said, they desperately needed a new one. When I asked what else they needed in the short term, she said, clothes, bed linen, underwear, shoes and towels.

I also noticed how Diana knew all the children by name and they knew her as well. She got a very warm welcome by those who were in a condition to give her one. I took notes and got the name and email of the director in order to

keep in touch and to follow up at a later stage. We had to continue since the time was running fast.



Diana Dimova and her friends from the Institution in Sladuk Kladeneč

We drove to another village, called 'Sladuk Kladeneč' (meaning 'Sweet Well'), another one of these sad places, and found a familiar situation. The conditions were quite similar. I got a very good feeling about the director, who was busy trying to reintegrate a boy back into his own family. She was also new to this post after a wave of fired directors followed the scandal with the home in Mogilino (the home, shown in the movie I had referred to in my poster: www.moviesfoundonline.com/bulgarias_abandoned_children.php). We spent at least an hour here as well, walking around, meeting the kids and speaking to the staff. Just before we left, we peaked into the gym; it was locked, and to my great surprise I saw a fully equipped room, which had never been used. The moment we unlocked the door 3 children stormed the equipment and started playing with it.



Ili's Charity

I asked why the kids weren't using it on a daily basis but was not given a straight answer. The equipment in the room was a donation from a French woman, and Diana had to immediately inform her about her 'present' not being used. She explained, that if the home management took no measures, the donor might withdraw her donation and give it to another home that would actually use it. I supposed that the lack of staff that could look after the kids playing there might explain this situation.



This place also needed clothes and shoes, and 80 beds, linen and towels, but most of all, they needed specialists and qualified personnel who would know what would be best for these children and how it could be achieved. There were an average of 10-15 children per single staff person.

They said to me, they hardly had the time to



A lady from the staff which seemed loved by the children.

change, wash and feed the kids under their supervision, therefore definitely no time for social interaction, education, games, sports etc. Here, I will mention, that many of these children were not ill or slow but after a year in such a place, their development would inevitably slow down.

One great idea Diana had was to find old women from the village, whose husbands had died and have them take a child in the morning and bring him/ her back in the evening. During

that day they could interact and do things together. She promised she would continue working on this project to try and make it an official program to which we could contribute. And who knows, maybe one day there could be many more children living with senior women and helping each other, instead of sitting and doing nothing in a mental institution, when

their place was not even there.



Farewell.

Later, we headed to visit another project developed by the Samaritans: a refuge for women and children victims of domestic violence. The refuge was located in a house, given to the Samaritans by the government and rebuilt with American donations. This project was done very well and was working like it should.



The refuge.

It was a well-protected and secured house with many independent rooms and a big backyard, where beehives and agriculture crops were grown for those interested in doing some work. Its function was to welcome women and their children who had suffered domestic violence, and to offer counseling and support in order to repair their family or to help them start an independent life, while avoiding at any cost the desertion of the child in one of the homes we had visited earlier. As it turns out, many of the children in such homes had been abandoned after a divorce or other serious family problems. The day was running out, and I wanted to visit the local 'Metro' shop to buy a gym bike for the children of Petrovo.

I spent the evening in a hotel in Stara Zagora

trying to collect my thoughts and impressions.

* * *

Early the next day, I left for my last stop in the village called Gorski Senovec, about 150km north across the middle of Stara Planina (Old Mountain), which stretches east from Sofia all the way to the Black Sea coast. I arrived before lunchtime in a very heavy rain.



I was received with a very warm welcome from Bistra Boteva, the manager in charge of this home and winner of 'Bulgarian manager of the year' award for her hard work and amazing results in her institution. She spoke to me for hours about what she had done and what was still to be done for her children. She had managed successfully to send many of the children to regular schools and was taking care of their personal progress just like a mother would do for her own children. The only difference here, was that she had about 10 kids going to school and many more wheel chair or bed-bound who needed the most attention and care. In comparison to the other homes I had visited, it seemed that the ill kids here were getting the care they needed.



Bistra Boteva, Christo and Ivan.

She told me about another serious problem she was facing with a gap in the system: when the children turned 18, they would have to leave the home and be left with no family, friends, work or home. She asked the municipality for an available house nearby which they could give her in order to renovate and try to give to these 18 year old children as a home to stay in until they found a job and a place to rent near their work. There were 5 children she expected to send off in the next couple of years and use this place as their intermediate stop. There was already a boy who was 18, and she still kept him illegally in the home while trying to find donations to help her make this house inhabitable.

I decided to support this renovation. Bistra had prepared a document for charity organizations and other donators, which listed all the construction costs for the work that needed to be done based on the offer of a local builder. She needed another 5000-euro in order to complete the house's renovation and make the place livable. I left her 1000-euro to start off the project. Our idea is to give the remaining 4000-euro from our budget to complete the renovation. I also donated 200 BGL (100-euro) to allow her to give 1BGL (50 euro cents) a day for pocket money (small snack or drink) to each student, and also to pay with it the transportation costs (3 euro a day) for one of them who was studying mechanics in the nearby town and had to commute daily.

In this home, I met some of the staff too, and I must say, I had a good feeling about them as

well; they seemed intelligent, well spoken and had a good approach to the children. I was also introduced to a woman, who was part of the team and an artist. She had art classes with the children every day, teaching them drawing and clay sculpture making. The children were very happy to give us two of their art objects as presents, and they also offered to make Christmas cards for us.



A girl holding a handmade plate, a present for us.

If we take the task of being some financial support for these children in the future, we could start writing them emails directly, organize a trip for them here, or maybe even some of you guys could join me on my next trip and pay them a visit, so that you could see for yourselves a completely different world, 2000 km away from the comfort of our own homes. This is their website: www.slanchice.org

For more information about current projects please contact any of the trustees directly.

In conclusion, I would like to thank my colleagues for their support and generosity, without which this good idea wouldn't have been possible. You guys are great...



A visit to KB Airbase

Ive Van Weddingen

The airbase in Kleine Brogel has a tradition of good contacts with the local community. There is active participation from the base personal in social and charitable events and frequent and open communication about the operations. One of the main information channels is the magazine "Bij ons in KB" which is published about 6 times per year. It contains a host of information about operations both at the base and by personal from the base on foreign assignments. Anybody can become a subscriber and the proceedings go to the charities, which are sponsored by the 10th Tactical Fighter Wing (10 W TAC). This year, all the subscribers were invited to take part in a behind the scenes visit to the airbase on 15 October.

I'm sure most of us have visited an airbase in the past on a military assignment, attending an open house or to see a local airshow. But when you visit an airshow, how much of the base do you really get to see? A lot of it remains off limits and most of the hangar doors remain shut. Even on the special spotter days, when the enthusiasts get the chance to see the action from up close, a lot of the base remains hidden behind the curtains. So when the opportunity presented itself to look behind those curtains, I made all the necessary arrangements to attend this event.



Just like in the rest of Western Europe, the Belgian Defence Force closed several airbases in its effort to adapt to the changing environment after the cold war. In keeping with the tradition, two major bases were kept open in the Walloon part and two in Flanders. With Koksijde dedicated to the SAR helicopters and Liège Bierset hosting the Agusta's from the Land Component, the two other bases are home to the F-16's of the Air Component. The post-cold war reduction in the active fighter fleet now leaves 72 F-16's in the Air Component. About half of them are based in Florennes (FS) and the other half in Kleine Brogel (KB) at the "Basis Generaal Majoor Vlieger Ivan Du Monceau de Bergendal" as the airbase is officially known. They are evenly distributed between the 31st (Tiger) Squadron, the 349th Squadron and the Operational Conversion Unit (OCU)

Guardian Falcon, KB is the lead base. And to top it off, there was an exercise in relation to the nuclear assignment of the base. BTW, the Belgian government denies the existence of nuclear weapons at the base, but the presence of the American 701st Munitions Support Squadron with its armament specialist suggests otherwise. Due to all this activity, it wouldn't be possible to see as much of the base as on other visits, but we were assured there would be plenty to see still. After the introduction the group was split in two and we were left in the hands of our guides Patrik and Wim for a visit to the maintenance hangar as well as the armament hanger.

We started off with the maintenance hanger. Here there are 8 stations, where the local F-16's get a full check every 300 hours. Each aircraft is almost completely taken apart and every



After checking in with the guard at the main gate, we were directed to block 15, one of the administrative buildings. At the side of the building the first surprise of the day was waiting: 3 F-104 Starfighters (or what remains of them after 3 decades of open air storage). In the building we were greeted by some personal from the PR section and we had the opportunity to take a look at the items in the gift shop. In the end about 120 people gathered here before the visit. There was a short introductory speech by one of the senior officers. He explained the importance of KB for the Air Component and gave a brief overview of current operations. At the time of writing, 8 F-16's from KB were taking part in exercises in the USA (Red Flag) and Canada (Maple Flag). The preparations for the upcoming participation in the NATO mission in Kandahar (Afghanistan) were in full swing. For this mission, know as

part is overhauled separately. Although now almost 30 years old, the F-16 is still a highly sophisticated weapon platform, requiring dedicated skills for all the different parts. There are different teams attending the hydraulics, landing gear, electrics, outer skin, etc... At the beginning of the work, the engine is removed



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and taken to the engine shop where it is completely revised and made ready to be built into the next aircraft. The same goes for the canopy and the ejection seats, which also have their own workshop. After all the work has been done, and most of the parts are back on the plane, it is moved to a different hangar where the paintjob can be touched up. The F-16 is not just sprayed with regular paint but with a highly sophisticated version. It's radar absorbing qualities make the F-16 less visible to enemy radar and any flaw in the paintjob will ruin the effect. Therefore re-painting is kept to a minimum. The 31st Tiger Squadron is famous throughout its history for its specially decorated tails, displayed at the annual Tiger Meet and at various other events. These days, when colorful artwork is applied to the tail, this no longer painted but printed on a big sticker. Not only does this make for a quicker removal when operationally needed, it is also a lot cheaper.

After the maintenance hanger we moved on to the armament hangar. Here we had the

opportunity to see what a fully armed F-16 would look like and we got an explanation on the possibilities for arming this aircraft. Although there was no live ammunition present (all the bombs were practice examples) we were not allowed to take pictures in this area. The main weapon is the built-in, 6-barrel M61A1 20 mm gun. The gun has a fire rate of 6000 rounds/minute and a capacity of 512 rounds. It is clear that the pilot has to be gentle with the trigger if he/she doesn't want to expend all the bullets in one shot. On the outside the F-16 has 9 armament stations. The outer 4 (1&2 and 8&9) are only used for air-to-air missiles like the short-range heat seeking AIM-9 Sidewinder and the longer range AIM-120 AMRAAM, which uses radar to track its target. The stations 4 and 6 are normally occupied by fuel tanks. This leaves 3 stations for the carriage of a wide range of bombs. The F-16 can carry both "dumb" or free fall bombs, as well as several "smart" weapons like GPS or laser designated bombs. Alternatively, the middle station 5 can be used for one larger fuel tank freeing up stations 4 and 6 for extra

weapons. In addition to the weapons on the stations, there is provision for a FLIR (Forward Looking Infra Red) and Laser designator pod on each side of the air intake. It takes an experienced crew 3 hours to fully rearm the plane. If only air-to-air weapons and the gun are used, then rearming can be completed within 1 hour.

On the day of the visit there was little flying activity, but there was a 6-plane mission planned in the afternoon. To get a good look at the action we were moved to a small parking area close to the ATC tower. After some waiting, the planes lined up in the distance and within seconds roared past with full afterburner, quickly disappearing in the gray autumn sky. We were offered the opportunity to wait 20 min. for the next mission, or return to the starting point for a cup of coffee. As it had started to rain, I chose the second option.

About 30000 people request to visit the airbase each year and about 10000 of those requests are granted. With the opening of the

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base museum in January, the pr department is looking into possibilities to allow more people to visit in the future. In any case 2009 will be a very busy year again with the various assignments for the squadrons. The year will also see the return of the NATO Tiger Meet to KB from 14 till 25 September. This 11-day exercise will feature several squadrons, which feature a Tiger or other big cat in their logo, and will bring a host of specially decorated aircraft to KB. The public will get the opportunity to see the aircraft up close at an exclusive spotters day on 18 September. Also the yearly Sanicole airshow has moved from its early August slot to 20 September, in order to maximize the participation of the NATO Tigers at this event. More info can be obtained from www.natotigers.org

